

Species Diversity, 2001, 6, 127–132

## ***Empicoris* (Insecta: Heteroptera: Reduviidae) from the Ogasawara Islands, Japan**

**Tadashi Ishikawa**

*Laboratory of Insect Resources, Faculty of Agriculture, Tokyo University of Agriculture,  
Funako 1737, Atsugi-shi, Kanagawa, 243-0034 Japan  
E-mail: chuishikawa@hotmail.com*

(Received 11 October 2000; Accepted 26 April 2001)

The species of the reduviid genus *Empicoris* Wolff, 1811 inhabiting the Ogasawara (Bonin) Islands are reviewed. Three species are recognized including a new species: *E. rubromaculatus* (Blackburn, 1889), *E. tesselatoides* Wygodzinsky and Usinger, 1960, and *E. toshinobui* sp. nov. Illustrations and an identification key are provided.

**Key Words:** Heteroptera, Reduviidae, Emesinae, *Empicoris*, Ogasawara Islands, Japan.

### **Introduction**

*Empicoris* is a cosmopolitan genus of emesine assassin bugs comprising more than 80 described species. The genus is characterized by a combination of several features: the pronotum being carinated laterally on its posterior lobe; the foretarsi being two-segmented; the hemelytra each having a discal cell; and a longitudinal vein (M+Cu) and an oblique veinlet being extended from the base of the discal cell.

Wygodzinsky and Usinger (1960) reported three species of *Empicoris* from Micronesia: *E. tesselatoides* Wygodzinsky and Usinger, 1960 (as a replacement name for *E. tessellatus* McAtee and Malloch, 1926, preoccupied) from Guam and Tinian; *E. minutus* Usinger, 1946 from Guam; and “*Empicoris* sp. indet.” from Auluptagel, Palau. Among these species, *E. minutus* was the only one also reported by these authors from the Ogasawara Islands, being represented by one female specimen from Chichijima Is. Since then, no other *Empicoris* has been reported from the Ogasawaras.

Recently, three species of *Empicoris* were recognized in a series of Ogasawaran insects housed in the Tokyo University of Agriculture. Two of them are identical with *E. rubromaculatus* (Blackburn, 1889) and *E. tesselatoides*. The other was found to be undescribed, differing from every known species including the above-mentioned indeterminate one reported by Wygodzinsky and Usinger (1960). The third species is newly described here as *Empicoris toshinobui* sp. nov. Diagnostic descriptions for *E. rubromaculatus* and *E. tesselatoides* and a key to the Ogasawaran species are also provided.

The specimens examined in this paper are preserved in the Laboratory of Insect Resources, Tokyo University of Agriculture, except for two paratypes that will

be housed in the National Science Museum, Tokyo (NSMT). Abbreviations are used for the collectors as follows: KM, Kouichi Matsumoto; TK, Toshio Kishimoto; TM, Toshinobu Matsumoto.

***Empicoris rubromaculatus*** (Blackburn, 1889)  
(Fig. 1)

*Ploiariodes rubromaculatus* Blackburn, 1889: 349.

See Putshkov and Putshkov (1996) for junior synonyms.

**Diagnosis.** Body length 3.8–4.6 mm. General color dark brown. Antennal segment I decorated with about 10 dark annulations. Rostral segment III dark on apical half. Lateral carinae of posterior pronotal lobe developed anteriorly, as long as or much less than half as long as lobe (Fig. 1). Scutellum, metanotum, and abdominal tergite I each with spine. Hemelytra densely mottled with irregular blackish spots; pterostigma often pigmented in orange or red on apical part. Genital capsule equipped posteriorly with broad process; latter bifurcate in apical half.

**Material examined.** Ogasawara Islands: Chichijima Is. —1♀, Mt. Tsutsujiyama, 17.IV.1997, TK. Anijima Is. —1♀, Takinoura, 19.VI.2000, KM. Hahajima Is. —1♂, Mt. Chibusayama, 6.VII.1997, TK; 1♂, Mt. Chibusayama, 7.VII.1997, TM; 1♂, Koumoridani, 20.IV.1997, TK; 1♂, Koumoridani, 20.IV.1997, TM; 2♀, Mt. Funakiyama, 20.IV.1997, TK; 1♀, Minamizaki, 19.IV.1997, TM; 1♂, Hyôgidaira, 20.IV.1997, TM.

**Distribution.** Japan (Honshu, Kyushu, Ryukyu Islands, Ogasawara Islands); cosmopolitan.

**Remarks.** The Ogasawaran specimens examined here are not separable morphologically from those of *E. rubromaculatus* from Honshu, Kyushu, and the Ryukyu Islands of Japan.

Although *E. minutus*, considered closely related to *E. rubromaculatus* (Usinger 1946; Wygodzinsky 1966), has been reported from the Ogasawara Islands, as mentioned above, the single female involved could have been a misidentified specimen of *E. rubromaculatus*. However, I postpone any final conclusion about its identity until the specimen becomes available for examination.

***Empicoris tesselatoides*** Wygodzinsky and Usinger, 1960  
(Fig. 2)

*Empicoris tesselatus* McAtee and Malloch, 1926: 131 (preoccupied by *Ploeariola* (= *Empicoris*) *tesselata* Bergroth, 1914: 8).

*Empicoris tesselatoides* Wygodzinsky and Usinger, 1960: 267.

**Diagnosis.** Body length 4.2–4.7 mm. General color dark brown. Head with small tubercle in middle behind interocular furrow. Antennal segment I decorated with about 8 dark annulations. Rostral segment III entirely dark. Lateral carinae of posterior pronotal lobe fully developed (Fig. 2). Scutellum, metanotum, and abdominal tergite I each with spine. Hemelytra densely mottled with irregular black-

ish spots. Genital capsule with broad bifurcate process; bifurcation nearly as long as process itself, with pointed apices.

**Material examined.** Ogasawara Islands: Chichijima Is. —1♀, Mt. Yagiyama, 16.IV.1997, TM; 1♀, Tatsumidani–Nishikaigan, 31.VII.1996, TM. Otoutojima Is. —3♂ 2♀, Mt. Hironeyama, 20.VI.2000, KM. Anijima Is. —2 inds. (abdomens damaged), Takinoura, 19.VI.2000, KM. Mukojima Is. —1♀, Mt. Oyama, 27.VI.2000, KM.

**Distribution.** Japan (Ogasawara Islands); Mariana Islands; Singapore. This species is recorded here for the first time from the Ogasawara Islands.

*Empicoris toshinobui* sp. nov.

(Figs 3–11)

**Description of holotype** (male). *Measurements* (in mm). Body length 5.0. Head length excluding neck 0.6, width across eyes 0.5; interocular space 0.2. Antenna length 9.0. Pronotum length 0.7, width 0.6. Hemelytra length 4.0. Lengths of femur, tibia, and tarsus of forelegs 1.8, 1.5, and 0.3; of midlegs 3.6, 5.4, and 0.2; of hindlegs 5.0, 8.0, and 0.2, respectively.

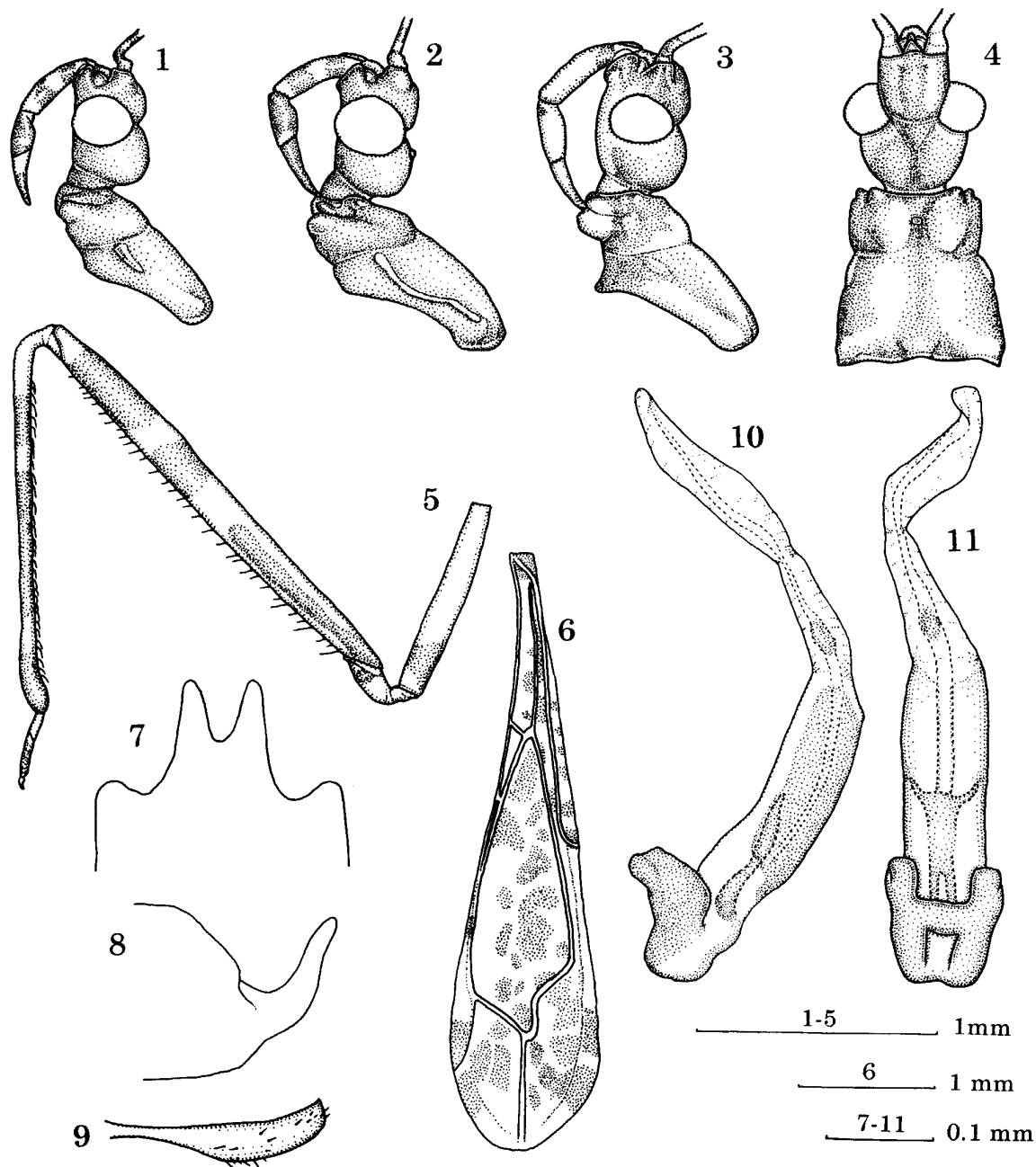
*Coloration.* Body generally brown. Head pale on ventral disc and around eyes, with anterior lobe pale dorsolaterally and along midline. Rostrum whitish except apical half of segment III and bases of I and II brownish. Antennal segment I whitish with 7 brownish annulations; other segments dark brown. Pronotum whitish on disc, with obscure brownish stripe along meson (Fig. 4); lateral carinae and humeri whitish (Fig. 3). Anterior lobe of propleuron whitish below. Foreleg (Fig. 5) whitish with brownish annulations on apical part of coxa, on subapical and submedian parts of femur, and on subbasal, median, and apical parts of tibia; trochanter ventroapically brownish; femur brownish on basal half of sides; tarsal segment II brown. Mid- and hindfemora with about 6 and 8 brownish annulations, respectively; mid- and hindtibiae each with about 8 broad, brownish annulations. Hemelytra whitish with many irregular brownish spots (Fig. 6). Abdomen whitish ventrolaterally except for basal and apical parts.

*Structure.* Head elliptical, covered with short pubescence, with anteocular region longer than postocular one; interocular furrow slightly convex posteriad. Eyes not reaching level of ventral surface of head. Antennae covered with short, decumbent hairs except segment I with long, erect ones; proportional length of segments I to IV as 9.5: 9.0: 3.0: 1.0.

Pronotum pubescent, slightly longer than humeral width; anterior lobe half as long as wide with small pit at center; posterior lobe shorter than wide, twice as long as anterior lobe, with lateral carinae weakly developed in anterior portion only. Scutellum salient apically but lacking spine. Metanotum with suberect apical spine.

Forelegs (Fig. 5) densely covered with short hairs; coxa 7 times as long as its maximum width; femur about 12 times as long as its maximum width, with anteroventral and posteroventral series of about 35 setae each; tibia about 4/5 as long as femur, ventrally bearing 2 series of adpressed setae. Hemelytra exceeding apex of abdomen by about 0.5 mm, with pterostigma well surpassing apex of discal cell (Fig. 6).

Abdomen covered with short pubescence; tergite I with erect spine; tergite VII



Figs 1-11. *Empicoris* spp. Hairs and pubescence omitted. 1, *E. rubromaculatus*; 2, *E. tessellatoides*; 3-11, *E. toshinobui* sp. nov.; 1-4, head and pronotum; 5, left foreleg; 6, left hemelytron; 7-8, apical parts of genital capsule, posteroventral and lateral views; 9, left paramere, lateral view; 10-11, phallus, lateral and dorsal views.

with round posterior margin produced behind. Genital capsule (Figs 7, 8) armed posteriorly with broad process bifurcated in its apical half. Paramere (Fig. 9) club-like, sparsely covered with short hairs, with acute apex.

Phallus of paratype long (Figs 10, 11); phallosome broadly sclerotized on ventral surface, slightly shorter than endosoma; struts mostly fused, subparallel-

sided, apically bearing pair of short arms; vesica arm fusiform, about twice as long as conjunctiva.

**Female.** Almost same in general appearance as male. Body length 5.0–5.5 mm; antennal segment I covered with short, decumbent hairs, without long, erect hairs; pronotum paler than that of male; abdomen with roundly protuberant posterior margin.

**Type series.** Holotype: ♂, Nakanodaira, Hahajima Is., Ogasawara Islands, Japan, 17.IV.1997, TM. Paratypes: Chichijima Is. —1 ♀, Higashikaigan, 15.IV.1997, TM. Hahajima Is. —3 ♀, same data as for the holotype (two of which in NSMT); 1 ♂, Koumoridani, 20.IV.1997, TM.

**Distribution.** Japan (Ogasawara Islands).

**Remarks.** This new species most resembles *Empicoris rubromaculatus* in the condition of the lateral pronotal carinae (Figs 1, 3) and the shape of the process on the male genital capsule. It is easily distinguished from the latter species by the lack of a scutellar spine, the whitish dorsum and ventral disc of head, and the lack of dark annulations on the rostrum except for a basal one on segment I (Fig. 3).

**Etymology.** The specific epithet honors Mr. Toshinobu Matsumoto, who collected the type specimens of the species.

### Key to the Species of Ogasawaran *Empicoris*

1. Lateral carinae of posterior pronotal lobe fully developed (Fig. 2) ..... *E. tessellatoides*
- Lateral carinae of posterior pronotal lobe half as long as lobe or less (Figs 1, 3) ..... 2
2. Scutellum with spine; pronotum darkened ..... *E. rubromaculatus*
- Scutellum without spine; pronotum rather whitish ..... *E. toshinobui* sp. nov.

### Acknowledgments

I express my special thanks to Prof. S. Okajima (Tokyo University of Agriculture, Kanagawa: TUA), Dr. M. Tomokuni (National Science Museum, Tokyo), and Dr. W. Cai (China Agricultural University, Beijing), for giving me valuable suggestions. I am also much indebted to Dr. B. Kranz (TUA), Dipl. Ing. E. Heiss (Tiroler Landesmuseum, Innsbruck), and Dr. T. J. Henry (United States Department of Agriculture, Washington, D.C.) for reviewing the manuscript, and to Mr. T. Matsumoto (PREC Institute, Inc., Tokyo), Dr. K. Matsumoto, and Dr. T. Kishimoto (TUA) for kindly providing the material examined in this study.

### References

- Bergroth, E. 1914. Heteropterous Hemiptera from Natal and Zululand. Goteborgs Kungl. Vetenskaps-och Vitterhets-Samhalles Handlingar 16: 3–16.
- Blackburn, T. 1889. Notes on the Hemiptera of Hawaiian Islands. Proceedings of the Linnean Society of New South Wales (2) 3: 343–354.

- McAtee, W. L. and Malloch, J. R. 1926. Philippine and Malayan Ploiariinae (Hemiptera, Reduviidae). *Philippine Journal of Science* 30: 117–152.
- Putshkov, P. V. and Putshkov, V. G. 1996. Family Reduviidae Latreille, 1807—assassin-bugs. Pp. 148–265. *In*: Aukema, B. and Rieger, C. (Eds) *Catalogue of the Heteroptera of the Palaearctic Region, Volume 2*. The Netherlands Entomological Society, Amsterdam, xiv+361 pp.
- Usinger, R. L. 1946. Hemiptera-Heteroptera of Guam. *Insects of Guam* 2: 11–103.
- Wygodzinsky, P. 1966. A monograph of the Emesinae (Reduviidae, Hemiptera). *Bulletin of the American Museum of Natural History* 133: 1–616.
- Wygodzinsky, P. and Usinger, R. L. 1960. Heteroptera: Reduviidae. *Insects of Micronesia* 7: 231–283.